Of the stages after the closure of the medullary folds the accounts are far less detailed than we could wish and there are many gaps in the organogeny which remain to be filled but which cannot at present be described on account of lack of material. Especially interesting are the figures given of a reconstruction of the skull of a well advanced embryo in which the pterygoquadrate bar is not completely fused with the cranium. Other features of organogeny given are concerned with (1) the integument and dentition in which embryos and larvæ of other chimæroids are considered and the conclusion is reached that the dental plates represent fused denticles. (2) The skeleton which is largely based on the work of Schauinsland. (3) The viscera. There is, even in early stages, no continuous mesentery. A few words are devoted to gut, gills and nephridial structures.

The third section, one of the most valuable of the work, is a discussion of the fossil chimæroids. The existence of Silurian members of the group is more than doubted, but, as shown by the Ptyctodonts, they probably occurred in the Devonian. The definite knowledge of the group began with the lower Jurassic, since which time numerous undoubted chimæroids have occurred, the group attaining its maximum development in the cretaceous. These fossils and the structure and embryology of the existing species are invoked to show that the chimæroids are not a primitive group but are a modified and specialized development from forms more like the normal Selachians. An extensive bibliography closes the volume.

J. S. K.

Development of the Mammalian Lung. Flint (Am. Journ. Anat. 6, 1906) describes in a long paper the development of the lung and associated structures in the pig The anlage is asymmetrical, and its origin, below the level of the gill pouches is an argument against any phylogenetic connection between lungs and gill pouches. The development of the bronchi is followed in detail and many variations noted, the complete series including sixteen on one side and seventeen on the other, a condition rarely occurring. Æby's conclusion that the pulmonary artery differentiates two lung regions of different morphological significance is not supported. The pulmonary veins arise as an outgrowth from the undivided portion of the sinus venosus, the veins to the right and left lungs developing by specialization in the capillary plexus. In the earlier history the division of the respiratory ducts is monopodial in character as in the lower pulmonate vertebrates and it is only in the other stages that dichotomous division, characteristic

of the mammals, sets in. The histogenesis and the development of the lymphatic system are also traced. The early stages were studied by Born reconstruction methods, the later by dissection and by corrosive preparations.

Half Hours with Fishes, Reptiles and Birds[1] is the second in the series of books by C. F. Holder, designed as supplementary readers for children in the grammar grades. The section devoted to birds suffers from the same defects in the arrangement of material that were pointed out in the review of the earlier volume (*American Naturalist*, **40**, *p. 140, 1906*). The part dealing with fishes is full of interesting information vividly presented.

R. H.

Notes.— In the Proceedings of the Indiana Academy of Science for 1905 (1906) Dennis and Petry give an interesting series of photographs of the young of the turkey buzzard showing the changes in the plumage from the tenth to the seventy-fourth day after hatching.

Zeleny (Proc. Acad. Sciences Indiana [for 1905] 1906) describes the regeneration of an antenna-like appendage in the place of an excised eye in the blind crayfish. The new organ has the appearance of a functional tactile organ and the experiment has especial interest in that a functional organ has developed in place of the functionless eye.

Martin describes (Proc. Indiana Acad. Sci. [for 1905] 1906) a handy clamp by which the blades of 'safety razors' may be used for section cutting, thus materially reducing the cost, confusion, etc., of supplying section knives to large classes.

Madison Grant publishes some "Notes on Adirondack Mammals" in the Eighth and Ninth Report of the Forest Fish and Game Commission of New York. The paper, which supplements Dr. Merriam's well known work on the same region, is illustrated with some fine half tones, some taken in the forest, others in the New York Zoological Gardens.

C. W. Johnson has collected all the references to the appearance and distribution of the English garden snail, *Helix hortensis*, in America and is inclined to think (Nautilus, **20**, p. 73, 1906) that it has not been

[1] Half Hours with Fishes, Reptiles and Birds. By Charles Frederick Holder. N. Y. American Book Company. pp. 255. Illustrated.